

PATENT COOPERATION TREATY



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 28 JUL 2004

WIPO

PCT

Applicant's or agent's file reference P54982PC00		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/NL 03/00260	International filing date (day/month/year) 07.04.2003	Priority date (day/month/year) 05.04.2002	
International Patent Classification (IPC) or both national classification and IPC C10G65/00			
Applicant ENGELHARD CORPORATION et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 05.11.2003		Date of completion of this report 27.07.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Rumbo, A Telephone No. +49 89 2399-8407 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL 03/00260

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 as originally filed

Claims, Numbers

2-13 as originally filed

1 received on 08.04.2004 with letter of 08.04.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☒ the claims, Nos.: 3,4
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL 03/00260

see separate sheet

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-13
Inventive step (IS)	Yes: Claims	
	No: Claims	1-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL03/00260

1. Independent claim 1 filed with letter dated 08.04.2004 contains the subject-matter of originally filed claims 3,4 which have been deleted. Claims 5-15 originally filed were consequently renumbered into claims 3-13.

2. The claimed subject-matter does not meet the requirements of Article 33(2) PCT. D1: US-A-6 261 441 discloses the hydro treatment (see hydrogen lines 2 and 17) in two steps (see figure 1 steps 1 and 16) in presence of GVIII metals. The step 1 is performed in the presence of zeolites as defined at col. 11, line 50 to col. 13, line 55) whereas the step inside reactor 16 is performed in the presence of quite a different kind of catalysts disclosed at col. 14, line 35 to col. 16, line 40 among which ferrierite is explicitly cited at col. 15, lines 63-67), which evidently have acidity values lower than those in step 1 meeting therefore all the technical features of present claims 1 to 13. In particular D1 discloses two possible alternative second steps namely A (disclosed between col. 11, line 48 and column 14, line 33) and B (disclosed between column 14, line 34 and col. 17, line 48). Each of the alternative steps concerns the use of supports being selected from the group of silica alumina and other non-zeolite supports.

2.1 In fact step A defines the presence of a very low acidic zeolite beta (see silica:alumina ratios from 200:1 to 400:1 and 600:1 at col 12, lines 60-63) in combination with a matrix selected from alumina, silica-alumina and silica (see col. 13, lines 38-44), wherein the ratio zeolite:matrix ranges from 80:20 to **20:80**, typically from 80:20 to **50:50**. All the ranges (but in particular 20:80 and 50:50 containing major amounts of matrix) can be considered as belonging to either silica alumina or other non-zeolite supports.

2.2 In the same way, step B (see col. 16, lines 10-13) defines as one of the alternative catalyst the presence of silicalite or SAPO (in particular SAPO 11 is cited) which are both belonging to non-zeolite supports and non acidic (in particular silicalite is the less acidic support known).

Silicalite not containing aluminium atoms and SAPO containing Phosphorus apart from silicium, aluminium and oxygen atoms are both considered in a strict sense as non-zeolitic compounds since in a classical definition zeolite is a crystalline porous aluminosilicate.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL03/00260

2.3 In the absence of at least one differentiating technical feature present in the wording of the independent claim the novelty of the claimed subject-matter cannot be acknowledged according to Article 33(2) PCT.

3. In the absence of a differentiating technical feature in the wording of the independent claim 1 which could be considered responsible for the solution of a technical problem in a way not obvious from D1, the inventive step of the claimed subject-matter cannot be acknowledged since it is considered as an obvious modification of the closest prior art documents.

Therefore the claimed subject-matter does not meet the requirements of inventive step of Article 33(3) PCT.

BEST AVAILABLE COPY

EPO - DG 1

08. 04. 2004

Revised claim 1

(71)

1. Process for hydroprocessing of hydrocarbon feedstock containing sulfur and/or nitrogen contaminants, said process comprising first contacting the hydrocarbon feedstock with hydrogen in the presence of at least one first group VIII metal on a first acidic support catalyst, the support being selected from
5 the group of zeolites and zeolite containing supports, and thereafter contacting the feedstock with hydrogen in the presence of at least one second group VIII metal catalyst on a less acidic support, said support being selected from the group of silica-alumina and other non-zeolite supports..